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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,910	07/15/2003	David Champion	200208821-1	8961

22879 7590 05/01/2007

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EXAMINER	
LEE, CYNTHIA K	
ART UNIT	**PAPER NUMBER**
1745	

MAIL DATE	DELIVERY MODE
05/01/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Advisory Action Before the Filing of an Appeal Brief	**Application No.** 10/620,910	**Applicant(s)** CHAMPION, DAVID
	Examiner Cynthia Lee	**Art Unit** 1745

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 18 April 2007 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:
   a) ☐ The period for reply expires _____months from the mailing date of the final rejection.
   b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

   Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because
   (a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);
   (b) ☐ They raise the issue of new matter (see NOTE below);
   (c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
   (d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

   NOTE: _____. (See 37 CFR 1.116 and 41.33(a)).
4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicant's reply has overcome the following rejection(s): _____.
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☒ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.
   The status of the claim(s) is (or will be) as follows:
   Claim(s) allowed: _____.
   Claim(s) objected to: _____.
   Claim(s) rejected: *1,2,6-16,18,19,21-23 and 44*.
   Claim(s) withdrawn from consideration: *3,4,17,43 and 45*.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing a good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

11. ☐ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: _____.
12. ☐ Note the attached Information Disclosure Statement(s). (PTO/SB/08) Paper No(s). _____
13. ☐ Other: _____.

Cynthia Lee
Patent Examiner

Response to Arguments

35 USC 112, 1st paragraph Rejection arguments:

The Examiner acknowledges that the art of "single chamber" or "reactant" fuel cell is known in the art. The Applicant's Specification still does not provide for enablement for "a cathode to anode space" arrangement. The Examiner notes that in order to provide for a single chamber fuel cell, a mere mixing of the cathode and anode reactants does not function to provide electrical power. An ordinary fuel cell must be modified to accommodate for the mixed reactant to provide adequate power. For example:

1) It is just as commonly known in the art that commonly used catalysts are not sufficient to provide an efficient fuel cell. For example, as cited by Applicants as Exhibit 1, Louis (US 4248941) discloses that:

> "Turning now to the electrodes, if the fuel and oxidant are separately manifolded to the anode and cathode electrodes, respectively, a conventional, electrically conductive fuel cell anode and cathode catalytic material, such as platinum or supported platinum, may be used for both catalyst layers. On the other hand, if mixed reactants are used, such as is the case in the embodiments shown in FIGS. 1 and 2, something must be done to cause an electrical potential to exist between the electrodes. For example, "selective" catalysts may be used for one or both electrodes. In this application a selective catalyst is one which, in the presence of mixed fuel and oxidant, will favor, to a significant extent, either the anode or cathode electrochemical reaction. Furthermore, as herein defined, to prevent ignition of the reactant mixture, a selective catalyst does not contribute to the direct chemical combination of the reactants." (emphasis added) (7:13-30)

Applicants are also referred to "Advances in Mixed-Reactatnt Fuel cells" by Shukla et. al., Fuel Cells, 2005, 4, 436-447, which is attached herewith.

2) As cited by the Applicants as Exhibit 2, Taylor (US 5102750) discloses that

"Due to the fact that the topmost layer 16 of the priorly known cell shown in FIG. 1 is exposed to the fuel/oxidizer mixture, constituents of that mixture combine on the catalyst layer 16 to form water and produce heat. In this side reaction, fuel which otherwise would be available to contribute to the electrical output of the cell is consumed. This result and the heat that is produced in the process are undesirable consequences of the noted side reaction. (emphasis added)" See 4:33-41.

"(an electrode) layer is made of a material that is relatively permeable to the hydrogen-containing fuel contained in the fuel/oxidizer mixture supplied to the cell, but relatively impermeable to the oxidizer in the mixture. (emphasis added)" See 4:60-65.

Applicant has not indicated in his Specification how the anode side and the cathode side are specially treated to avoid this undesired combustion reaction. If the anode and cathode layers are left untreated or special catalyst materials are not used as indicated in the exhibits, the undesired combustion reaction (heat generation instead of electricity generation) would occur if the common catalysts are employed, such at platinum.

The 35 USC 101 rejection has been withdrawn. However, the 35 USC 112, 1st paragraph rejection has been maintained.

Prior Art Rejections for claims 14-16 and 18

The Examiner's interpretation of the limitation "only reactant flow direction is inward toward the housing exhaust port that is located radially inward of the housing inlet" is as follows:

To summarize the abovementioned claim limitation, the housing exhaust port is located radially inward of the housing inlet. The reactant flow direction is only inward toward a radially inward port.

Montemayor's housing exhaust port 22 is located radially inward of the housing inlet. The Examiner is interpreting the flow direction of both arrows 34 to meet the limitation direction only inward toward the radially inward port because the limitation "inward" has not been specified as to in which direction, and is not limited to "radially inward" direction. The flow direction of both arrows 34, and thus Applicant's arrows B and C, point toward the inward of the fuel cell 28, and not outward, and thus meets the limitation "only ... inward toward ... the radially inward (port)".

Prior Art Rejections for claims 19 and 21-23

Before addressing the Applicant's comments on the irrelevance of the functional equivalence, the Examiner reiterates that the Specification discloses several distinct embodiments, as supported by the Restriction requirement dated 12/9/2005. The Applicants have not refuted the Examiner's point that the Applicant has not specified in the Specification as to which embodiment the means-plus-function refers to.

Furthermore, the Applicants have not excluded any definitions that would exclude any structures.

The Examiner disagrees with the interpretation that Montemayor outlet tube D is separated from the casing by two other outlet tubes. The outlet tube D is connected to the housing by two other tubes. Further, since the inner region defines a perimeter of the fuel cell assembly, **the space within the casing undertakes the meaning of "the inner region,"** which is not limited to an inner region in the radial direction. Thus, considering the broadness of the meaning of "the inner region," the Examiner notes that all the byproducts and any unused reactants must necessarily exit by way of the inner region of the housing because arrows 22 and 24 are originating from the inner portion of the fuel cell housing.

This interpretation would not be contradictory to the mean-plus-function element containing "directing the reactants and byproducts **from the outer region** to the inner region" (emphasis in original) because in light of the Examiner's interpretation of "the inner region" above, the reactant gas necessarily originates from the outer portion of the fuel cell housing and is introduced into the inner region and exits by the way of the inner region.

Susy Tsang-Foster

SUSY TSANG-FOSTER
PRIMARY EXAMINER